

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A computerized method for processing an image obtained by scanning, said image being a substantially rectangular shape having four corners and including at least a plurality of pixels, said pixels each having a value representative of an optical characteristic of a scanned object, said method comprising:

identifying a plurality of pixels along at least one edge portion of the image as a function of the pixel values, said identifying the pixels along the edge portion of the image including processing the image as a function of pixel values to identify corners of the image, said processing the image to identify corners including:

defining a plurality of at least substantially diagonal processing lines relative to the target orientation, each processing line having a first position tangentially aligned to a different corner of the image;

repositioning each of the processing lines a predetermined distance towards a center of the target orientation until each of the processing lines intersects one of the pixels having a pixel value substantially different than previously processed pixels; and

recording a location of each of the intersected pixels;

defining one or more edges of the image from the identified pixels;

determining an orientation of the image relative to a target orientation as a function of the defined edges; and

adjusting the orientation of the image portion to correspond to the target orientation.

Claim 2 (original): The computerized method of claim 1, wherein identifying the pixels along the edge portion of the image includes distinguishing the edge portion of the image from a border portion of the image adjacent the edge portion, said pixels along the edge portion of the image having substantially different pixel values than said pixels in the border portion of the image.

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Claim 3 (original): The computerized method of claim 2 further comprising cropping the adjusted image to eliminate the border portion.

Claim 4 (original): The computerized method of claim 1, wherein defining the edges of the image includes matching the identified pixels to a predefined shape.

Claims 5 and 6 (canceled).

Claim 7 (currently amended): The computerized method of ~~claim 5~~ claim 1, wherein processing the image includes:

defining at least one horizontal processing line relative to the target orientation, said horizontal processing line having a first position coincident with a top side or a bottom side of the image;

defining at least one vertical line relative to the target orientation, said vertical processing line having a first position coincident with a right side or a left side of the image;

repositioning each of the horizontal and vertical lines a predetermined distance towards a center of the target orientation until each of the processing lines intersects a pixel having a pixel value substantially different than previously processed pixels; and

recording a location of each of the intersected pixels.

Claim 8 (original): The computerized method of claim 1, wherein the plurality of pixels are arranged in rows and columns, and wherein identifying the pixels along the edge portion of the image includes:

analyzing each column to identify a horizontal transition point at which pixels transition from a first value to a second value, said first and second values being substantially different from each other;

grouping the horizontal transition points to identify top and bottom edges of the image.

Claim 9 (original): The computerized method of claim 1, wherein the plurality of pixels are arranged in rows and columns, and wherein identifying the pixels along the edge portion of the image includes:

analyzing each row to identify a vertical transition point at which pixels transition from a first value to a second value, said first and second values being substantially different from each other; and

grouping the vertical transition points to identify left side and right side edges of the image.

Claim 10 (original): The computerized method of claim 1, further comprising applying a Laplacian filter to each pixel to identify one or more transition points between adjacent pixels.

Claim 11 (original): The computerized method of claim 1, wherein determining an orientation of the image includes:

defining a reference axis;

grouping the identified pixels to define an outline of the image;

comparing the defined outline to the reference axis; and

determining an orientation error between the determined orientation of the image and the target orientation as a function of the comparison.

Claim 12 (original): The computerized method of claim 11, wherein the adjusting includes:

identifying a point of rotation; and

rotating the image about the identified point of rotation in response to the determined orientation error.

Claim 13 (original): The computerized method of claim 11, wherein the adjusting further includes sizing the image to correspond to a target size.

Claim 14 (original): One or more computer-readable media having computer-executable instructions for performing the method of claim 1.

Claim 15 (currently amended): A computer-readable medium having computer-executable instructions for processing a digital image, said digital image including a border portion and an image portion, wherein the border portion and the image portion each include at least a plurality of pixels, said pixels each having a value representative of an optical characteristic of a scanned object, and wherein the image portion is a substantially rectangular shape having four corners, comprising:

identifying instructions for identifying a plurality of pixels along at least one edge portion of the image portion as a function of the pixel values, wherein said pixels in the border portion have substantially different pixel values than said pixels in the image portion of the image, and wherein said pixels along the edge portion of the digital image distinguish the image portion of the digital image from the border portion adjacent the edge portion, wherein said identifying instructions for identifying the pixels along the edge portion of the image portion includes processing the digital image as a function of pixel values to identify corners of the image, and wherein processing the digital image to identify corners includes:

defining a plurality of diagonal processing lines relative to the target orientation,
each diagonal processing line having a first position tangentially aligned to a different
corner of the image;

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repositioning each of the diagonal processing lines a predetermined distance
toward a center of the target orientation until each of the processing lines intersects one
of the pixels having a pixel value substantially different than previously processed pixels;
and

recording a location of each of the intersected pixels;

defining instructions for defining one or more edges of the image portion from the
identified pixels;

determining instructions for determining an orientation of the image portion relative to a
target orientation as a function of the defined edges;

adjusting instructions for adjusting the orientation of the image portion to correspond to
the target orientation; and

cropping instructions for cropping the adjusted image portion to eliminate the border
portion.

Claim 16 (original): The computer-readable medium of claim 15, wherein defining the edges of
the image portion includes matching the identified pixels to a predefined shape.

Claims 17 and 18 (canceled).

Claim 19 (original): The computer-readable medium of claim 15, wherein the plurality of pixels
are arranged in rows and columns, and wherein identifying instructions for identifying the pixels
along the edge portion of the image portion includes:

analyzing each column to identify a horizontal transition point at which pixels transition
from a first value to a second value, said first and second values being substantially different
from each other; and

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grouping the horizontal transition points to identify top and bottom edges of the image portion.

Claim 20 (original): The computer-readable medium of claim 15, wherein the plurality of pixels are arranged in rows and columns, and wherein identifying instructions for identifying the pixels along the edge portion of the image portion includes:

analyzing each row to identify a vertical transition point at which pixels transition from a first value to a second value, said first and second values being substantially different from each other; and

grouping the vertical transition points to identify left side and right side edges of the image portion.

Claim 21 (original): The computer-readable medium of claim 15, wherein determining instructions for determining an orientation of the image portion include:

defining a reference axis;

grouping the identified pixels to define an outline of the image portion;

comparing the defined outline to the reference axis;

determining an orientation error between the determined orientation of the image portion and the target orientation as a function of the comparison; and

sizing the image portion to correspond to a target size.

Claim 22 (original): The computer-readable medium of claim 21, wherein the adjusting instructions include:

identifying a point of rotation; and

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rotating the image about the identified point of rotation in response to the determined orientation error.

Claim 23 (currently amended): A system for processing an image, said image being a substantially rectangular shape having four corners and including at least a plurality of pixels, said pixels each having a value representative of an optical characteristic of a scanned object, said system storing computer-executable instructions to do the following:

identifying a plurality of pixels along at least one edge portion of the image as a function of the pixel values, said identifying the pixels along the edge portion of the image including processing the image as a function of pixel values to identify corners of the image, said processing the image including:

defining a plurality of at least substantially diagonal processing lines relative to the target orientation, each processing line having a first position tangentially aligned to a different corner of the image;

repositioning each of the processing lines a predetermined distance towards a center of the target orientation until each of the processing lines intersects one of the pixels having a pixel value substantially different than previously processed pixels; and

recording a location of each of the intersected pixels;

defining one or more edges of the image from the identified pixels;

determining an orientation of the image relative to a target orientation as a function of the defined edges;

adjusting the orientation of the image portion to correspond to the target orientation; and

cropping the adjusted image to eliminate the border portion.

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Claim 24 (original): The system of claim 23, wherein identifying the pixels along the edge portion of the image includes distinguishing the edge portion of the image from a border portion of the image adjacent the edge portion, said pixels along the edge portion of the image having substantially different pixel values than said pixels in the border portion of the image.

Claim 25 (original): The system of claim 23, wherein defining the edges of the image includes matching the identified pixels to a predefined shape.

Claims 26 and 27 (canceled).

Claim 28 (original): The system of claim 23, wherein the plurality of pixels are arranged in rows and columns, and wherein identifying the pixels along the edge portion of the image includes:

analyzing each column to identify a horizontal transition point at which pixels transition from a first value to a second value, said first and second values being substantially different from each other;

grouping the horizontal transition points to identify top and bottom edges of the image.

Claim 29 (original): The system of claim 23, wherein the plurality of pixels are arranged in rows and columns, and wherein identifying the pixels along the edge portion of the image includes:

analyzing each row to identify a vertical transition point at which pixels transition from a first value to a second value, said first and second values being substantially different from each other; and

grouping the vertical transition points to identify left side and right side edges of the image.

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Claim 30 (original): The system of claim 23, wherein determining an orientation of the image includes:

- defining a reference axis;
- grouping the identified pixels to define an outline of the image;
- comparing the defined outline to the reference axis;
- determining an orientation error between the determined orientation of the image and the target orientation as a function of the comparison; and
- sizing the image to correspond to a target size.

Claim 31 (original): The computerized method of claim 30, wherein the adjusting includes:

- identifying a point of rotation; and
- rotating the image about the identified point of rotation in response to the determined orientation error.